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Land Air&Water

Kentucky Natural Resources and Environmental Protection Cabinet

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Dear Readers:

I wanted to thank all of you for the photographs that you submitted for the cover of this issue. I was very pleased with the response. I received 23 digital photos, nine slides and 29 photographs in paper format.

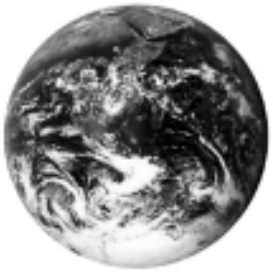
As you can see from the cover, there was some pretty stiff competition. There are many excellent photographers out there! Photos came in a wide variety of images--from flowers and trees to rocky streams, from grazing deer to spiders--that made selecting the cover an enjoyable process.

If your entry did not appear on this cover, don't give up. It might be used on a future issue. Also, remember that each issue features a particular season, so your photographs should depict that time of year.

As promised, your slides and photos will be returned to you. As for the digital photographs, I have created a permanent file and will retain them for possible use on upcoming issues of *Land, Air & Water.*

It's obvious that Kentucky can provide us with the maximum daily allowance of beauty and color which can be captured through the lens of your cameras. Enjoy it and share its inspiration through photographs so that others might enjoy its beauty through your eyes.

Cindy Schafer



This year the Earth Day Network's theme for Earth Day 2000 is **"Clean Energy Now."** Check out the centerfold on pages 9 & 10 for additional information.

Land Air&Water Online

Visit *Land, Air & Water* magazine on the World Wide Web at
www.nr.state.ky.us/nrepc/landairwater.htm

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Spring 2000

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Streamside shot with wild geranium (*Geranium maculatum*) top; Small white lady's-slipper orchid (*Cypripedium candidum*) left. Both photographs by Thomas G. Barnes, associate extension professor, University of Kentucky. A spider spins its silken web, right. By Natalie Smith, Bardstown, Kentucky.

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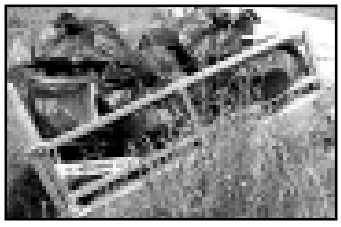

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"SOAP" helps mining companies succeed

By Donna Schartung
Department for Surface Mining Reclamation and Enforcement
Small Operator Assistance Program

Soap and coal mining may seem like two things with very little in common. But when the kind of SOAP you're referring to is the Small Operators Assistance Program (SOAP), the two topics work hand in hand.

Small operators mine smaller tracts of land that larger companies don't. Small operators are an important part of local economies, especially in southeastern Kentucky, but they are at a financial disadvantage when compared to larger firms. Some small operators need financial help and expertise to address the environmental requirements of permit applications. That's why Congress established the SOAP.

The program assists small operators with the costs of environmental monitoring and other pre-permit work that must be done at a proposed mine site. This includes water sampling, installation of monitoring wells, geological sampling and archaeological and biological studies. Often the program benefits local communities by helping small operators remine and restore old mine sites according to modern standards.

"Since the cost of permitting has gotten so high, the program has been the salvation of the small operator," said Larry Jamieson, owner of Jamieson Construction, a mining and construction company. "It is doing an excellent job, and without it I would probably not still be in the coal business."

Rob Noonan of Candle Ridge Mining Inc. agrees. "The jobs and tonnage per job are small. Cash flow is critical with smaller jobs, so if you had to pay 100 percent of the engineering cost up front it couldn't work," Noonan said.

Kentucky's SOAP is administered by the Department for Surface Mining Reclamation and Enforcement (DSMRE). It links small operators with engineers, geologists, contractors and other professionals hired by the SOAP. These professionals share their knowledge with small operators who may need assistance in the permitting process.

"Since the cost of permitting has gotten so high, the program has been the salvation of the small operator."

Larry Jamieson, owner
Jamieson Construction Co.

Jamieson Construction won a national award for this site (permit #863-0280) in Laurel County. The hill, once mined, is now fully reclaimed. DSMRE London Regional Office photo

Applicants to the assistance program must:

- not have mined more than 300,000 tons of coal in the previous 12 months.
- be in good standing with the DSMRE.
- have legal access to the proposed mine site.
- have the right to mine on the proposed site.

The program has helped more than 1,600 small operators in Kentucky since it began in 1979. In 1999, the program assisted more than 50 small mining companies with 86 projects.

To learn more about the SOAP, call J.R. Hamm at (502) 564-2356 or write to SOAP, Department for Surface Mining Reclamation and Enforcement, #2 Hudson Hollow, Frankfort, KY 40601.

See the SOAP Web site at **http://www.kydsmre.nr.state.ky.us/permit_soap.htm.**

J.R. Hamm, manager of the Small Operator Assistance Program, works to provide environmental services for small mining companies. DSMRE photo

Kentucky's surface mining program makes history

By David Nance
Department for Surface Mining Reclamation and Enforcement

Bruce Gillespie, Summit Engineering, submits the first electronic surface coal mining permit application on CD to the Department for Surface Mining Reclamation and Enforcement in Frankfort. DSMRE photo

When Bruce Gillespie of Summit Engineering delivered a compact disc to the Department for Surface Mining Reclamation and Enforcement (DSMRE), he became part of an important milestone in the department's history. The CD contained a permit application for Sidney Coal Co. Inc. (application number 898-5741 amendment #3). It was the first complete surface coal mining permit application ever submitted to the department electronically. This submission marked the final step in the department's efforts to implement an electronic permit review process. It also moved the department closer to its goal of receiving, reviewing and issuing permits in electronic format.

> *"The electronic permit program has the potential of making the permitting process quicker and easier for the coal industry."*
>
> **Michael Parker**
> **Summit Engineering**

The department's electronic permitting effort began with a test project in its Division of Permits—Ownership and Control Section. In the fall of 1998, the department began electronically accepting and reviewing the text-based, administrative portion of mining applications. This portion of the application was easier to submit and process electronically than the remainder of the application, because it did not require a large computer data file. The success of this test project led the department to begin its efforts to make the remaining technical part of the application available electronically.

The next year brought a series of meetings with department personnel and industry engineers. Their challenge was to develop an electronic format that could handle the large data files needed for the maps, drawings and complex text that are part of the technical portion of the permit application. In October 1999, the department released this new format to the industry. This is the application form that Sidney Coal submitted on Nov. 19, 1999.

The technical application is based on Microsoft Word. It features custom toolbars that allow engineers to easily insert attachments, large maps and drawings into the permit application. Navigation tools built into the application greatly enhance the permit reviewers' ability to quickly locate appropriate sections of the application. These features combine into a simple process for assembling and filing a technical permit application.

Once received, the Sidney application moved into the next portion of the electronic permit review; it was filed in the electronic document management system. The document management system is similar to an electronic file room and makes the electronic application and all related documents accessible to multiple department personnel at the same time.

Next, the department transferred the Sidney application into the technical review workflow. This process allows the permit application to move electronically step-by-step through the permit review process. It greatly improves the efficiency of the review by eliminating the need to move the application from desk to desk.

"The electronic permit program has the potential of making the permitting process quicker and easier for the coal industry," said Michael Parker, a project engineer for Summit Engineering. "The program also has the promise of allowing greater public access to the information contained in the permit."

The department will soon expand its electronic permit capabilities to include the ability to issue permits electronically.

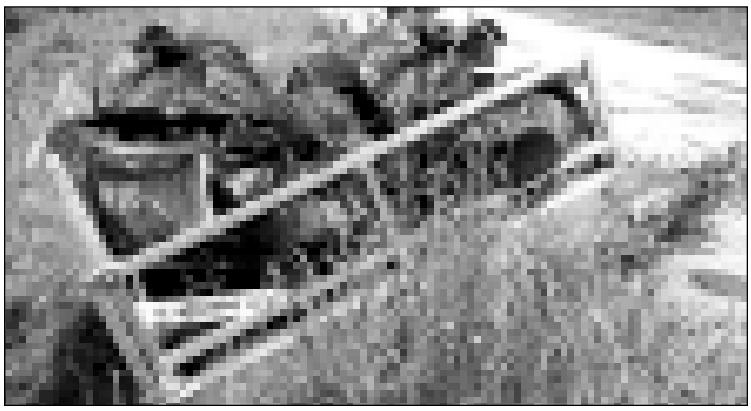
The success of the electronic permitting project in the Division of Permits has led the department to look at ways of improving the electronic workflow process in its Division of Field Services. The department is also currently enhancing its document management system, which will make information more accessible to the public, the regulated community and the department's inspection personnel.

With all the components of electronic permit review in place, the DSMRE hopes more companies will take advantage of this simple and economical way to submit their surface coal mining permit applications.

See the Division of Permits Web site at http://kydsmre.nr.state.ky.us/dsmre_permits.htm

New "Patton sled" makes garbage easier to move

By Anya Armes Weber
Division of Waste Management



Most people think of a sled as a way to move kids and adults downhill in the snowy season. But two new sleds are moving garbage uphill, thanks to the Division of Waste Management. Division employees have designed the devices to help in the cleanup of illegal dumps.

During Commonwealth Cleanup Week in 1999, Gov. Paul Patton, Natural Resources and Environmental Protection Cabinet Secretary James E. Bickford and House Speaker Jody Richards assisted in the cleanup of a hillside dump in Franklin County. Patton pointed out the need for a tool to haul garbage bags and large items like discarded refrigerators from the bottom of dumps to the roadside.

George Gilbert, engineer consultant in the Division of Waste Management, led three other cabinet engineers in the effort to design such a device. The other team members were Courtney Seitz, Tom Skaggs and Mike Tipton, all from the Division of Water. The team and several field personnel tested a sled in Clark, Franklin and Marion counties with assistance from workers in those counties. After several revisions, the team finalized plans for two garbage haulers, known as the "Patton sleds."

The smaller of the sleds is 4 feet by 6 feet and sits on two runners. It is made of aluminum at a cost of about $1,400. Gilbert said this sled works best on steeper slopes and slides over trash without getting hung on debris. The Division of Waste Management plans to distribute drawings of the small sled to counties and other agencies interested in building one.

> "We were very pleased with it. We picked up stoves and several appliances out of a creek bed that we might not have gotten out at all without it."
>
> **Owen County Judge-Executive Billy O'Banion**

The larger garbage hauler is a 5-foot-by-15-foot modified johnboat. It works best in large dumps with slopes that are not steep. It costs about $1,000 to transform a johnboat into a garbage sled.

Both haulers are lightweight and can fit into the back of a pickup truck. Removable side panels allow users to load and unload large items. The sleds are strong enough to hold a refrigerator and are secured to a pulley by two connection points to prevent the sled from overturning while it's in use.

George Weems, an inspector in the Division of Waste Management's Frankfort Regional Office, helped test the small sled last spring and summer. "It will help a lot, safety-wise especially," he said, noting that the sled's pulley system is less hazardous than using a wench to drag up appliances and full trash bags. "There is more control with the sled since it is pulled up with a vehicle instead of a pulley," Weems said.

Another benefit is that it's a "step saver" for the inspectors and volunteers who clean up dumps, Weems said. Without the sled, "you have a bag of trash, you have to throw and climb." With the sleds, inspectors can spend less time climbing and more time cleaning.

The Division of Waste Management's Frankfort office will make both sleds available to counties and other agencies that wish to borrow them.

Owen County officials borrowed the smaller, aluminum sled and inmates there used it to haul garbage about 40 feet up from a roadside dump.

"We were very pleased with it," said Owen County Judge-Executive Billy O'Banion. "We picked up stoves and several appliances out of a creek bed that we might not have gotten out at all without it."

Since O'Banion took office in January 1999, he has made cleaning up Owen County a top priority. Residents have accepted roadside litter and dumping, he said, because that's the way it's always been. "Change is a huge thing, but we try to do it. Once we do it, people see it's a success and that it's not so bad."

O'Banion believes the sleds would be a big help in making those improvements. "I'd like to have one of our own," he said. O'Banion has requested that the industrial arts class at Owen County High School build one of the small sleds.

Gilbert plans to present information about the sleds to community officials at various meetings he attends.

For more information about the "Patton sleds," call Gilbert at (502) 564-6716, or e-mail him at **George.Gilbert@mail. state.ky.us.**

(Above) Garbage bags retrieved from an illegal dump on Red River Road in Clark County. (Left) Bill Hill, Natural Resources and Environmental Protection Cabinet employee, right, and Clark County Detention Center inmates haul trash from the Red River Road dump site. Photos courtesy of James Mann, Winchester Sun

EQC offers recommendations to address Kentucky's sewage problems

By Leslie Cole, Director
Environmental Quality Commission

Everyday thousands of gallons of sewage are improperly discharged to land and waterways, threatening public health and the environment.
Photo by EQC

Kentucky holds first place in a category no state wants to stand out in.

The Commonwealth ranks first in the nation in the number of rural homes without adequate plumbing, according to the Rural Community Assistance Program. That statistic points to a bigger problem. The state's treatment and disposal of sewage present serious problems around the state.

Many cities and counties provide sewer services to residents, but sewage treatment plants are not a financially feasible option in many rural areas of Kentucky. An estimated 44 percent of the state's households depend upon individual "onsite sewage systems," such as septic tanks or multi-family cluster systems, to treat waste.

In 1999, the Environmental Quality Commission (EQC) embarked on a project to assess onsite sewage issues and policy needs in Kentucky.

Here are some of the facts uncovered in the agency's research:

- 600,000 housing units in Kentucky depend upon onsite systems to treat sewage. That's about 40 percent of the state's housing units. (Source: U.S. Census)
- In fiscal year 1998-99, more than 22,000 onsite sewage permits were issued in Kentucky. That's an increase of 27 percent from the previous year. (Source: Kentucky Department for Public Health)
- In 1997, state and local officials received 5,000 public complaints concerning onsite sewage. (Source: Kentucky Department for Public Health)
- The Kentucky Division of Water ranks onsite sewage as the fourth leading source of water pollution in monitored waterways.
- 37 percent of all new homes built in Kentucky use onsite systems for wastewater treatment. (Source: Kentucky Onsite Wastewater Association)

The EQC's research project included surveys of county health departments and numerous interviews. Participants pointed out a mixture of issues and policy needs, including the following:

- The Cabinet for Health Services' Onsite Sewage Program is woefully underfunded and understaffed with a staff of three and a budget of $600,000.
- Greater coordination is needed between the Cabinet for Health Services and the Natural Resources and Environmental Protection Cabinet (NREPC) to collectively address the problems associated with onsite sewage.
- Onsite sewage rules are not being consistently enforced among local health departments.
- Kentucky has done a dismal job of educating the public about the importance of proper wastewater treatment.
- Limited information is available on the extent of failing onsite systems and straight pipes in Kentucky.
- There are no statewide funding programs for onsite sewage or small alternative systems.

The EQC convened a roundtable to consider these and other onsite sewage issues. Roundtable participants reached a general consensus on many ways to address the issues. Here are the group's seven key recommendations:

Resources and Funding -- Keep the Onsite Sewage Program within the Cabinet for Health Services but increase its staff and funding. This could be accomplished by increasing the $30 fee for an onsite sewage permit and/or allocating more state funds.

Continued on Page 7

Environmental Quality Commission

phone: (502) 564-2150 ext. 160
e-mail: EQC@mail.nr.state.ky.us
Web site: http:/www.state.ky.us/agencies/eqc/eqc.html

The EQC is a seven-member citizen board with a mission to increase awareness, responsibility and positive action toward a clean, healthy future for all Kentuckians.

Aliens among us

By Joyce Bender, Stewardship Coordinator
Kentucky State Nature Preserves Commission

Kudzu (*Pueraria lobata*)

To most people, the words "alien invasion" conjure up images of some science-fiction movie. The horrors of space invaders are the figments of a screenwriter's imagination, but the devastation from alien plants is all too real. The United States is being invaded by aliens, exotic plants that are not native to this country.

Introduced from Europe and Asia, these non-native species invade our natural areas and our croplands. With no natural predators to control their numbers, invasive exotic plants spread at the expense of our native species. They eliminate the beauty of our spring woodlands and displace wildlife by edging out native species for space, light and nutrients. They cause serious economic damage as well, reducing profitable harvests and ruining pasture land. Invasive exotic plants are considered to be one of the leading threats to natural biodiversity, second only to habitat destruction.

Purple loosestrife (*Lythrum salicaria*)

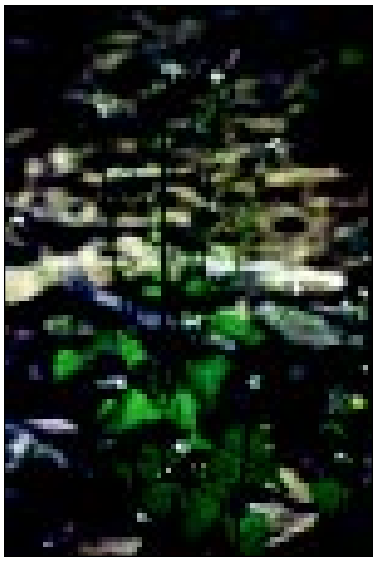
In Kentucky, everyone may not know the invasive species garlic mustard and oriental bittersweet, but most folks have encountered kudzu and Japanese honeysuckle. These species and others have become major pests in natural areas across the state.

It is the responsibility of the Kentucky State Nature Preserves Commission (KSNPC) to control the establishment and spread of exotics on the 39 nature preserves in the state system. Stewardship program staff are doing their best to curtail the spread of kudzu, sweet clover, garlic mustard, bush honeysuckle, Japanese honeysuckle, oriental bittersweet, stilt grass, Japanese knotweed and musk thistle on the state nature preserves. The work is hot, tiring and expensive. In just the past year, the KSNPC has spent more than $11,000 in staff salary and herbicides to combat this problem. More employees are needed to assist in scouring the nature preserves to identify other problem species and to monitor the effectiveness of the control efforts.

Many of these species require several years of treatment before success can be declared. The commission has been working on kudzu for the longest period of time, and its efforts are paying off. Hillsides at Vernon-Douglas State Nature Preserve that once were curtains of green vines are returning to native cover. Kudzu populations at Blanton Forest State Nature Preserve and Pine Mountain State Park Nature Preserve have been nearly eliminated. Musk thistles are few and far between at Raymond Athey Barrens State Nature Preserve since efforts to eradicate this species from grassland areas began.

Even if all of the current pests within Kentucky's preserves could be tackled, the job won't get easier because there are more exotics gathering on the preserve borders and at the state lines. Spotted knapweed has been pulled up from the edges of Eastview Barrens State Nature Preserve. Purple loosestrife has been observed in roadside ditches along I-64 (a perfect distribution corridor). Mile-a-Minute weed (think kudzu with barbs!) has been found in Ohio and West Virginia, and Tropical Soda Apple (an aggressive invader of open pasture and fields) is in Tennessee.

What can you do to help with this serious threat? Buy native plants when landscaping your home. There are numerous native species that will provide the color, interest and wildlife values you are looking for. Ask questions at the nursery about the invasive tendencies of any ornamentals you are considering for purchase. Work on eradicating invasive exotics from your property, and volunteer with your local park or state nature preserve to control exotics. Support the Kentucky Chapter of the Southeast Exotic Pest Plant Council (SE EPPC). The SE EPPC is the blanket organization for citizens in Tennessee, Kentucky, North Carolina, Florida, Georgia and South Carolina who are interested in



Garlic mustard (*Alliaria petiolata*)

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Does the Kentucky Forest Conservation Act affect you?

By Gwen Holt
Division of Forestry

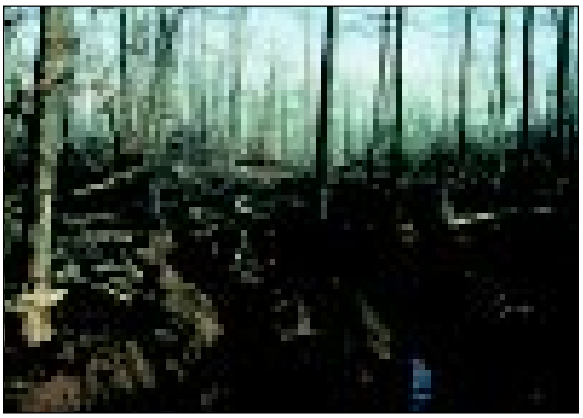
Do you log? Do you own forest land? Do you plan on harvesting the timber on your land? If you answered yes to any of these questions, then you need to be aware of the requirements of the Kentucky Forest Conservation Act (KFCA).

The two main components of the KFCA that affect private forest landowners are:

Beginning July 15, 2000

- A master logger must be on site and in charge of all commercial timber harvesting operations (except logging done only with mules and horses).
- Appropriate best management practices (BMPs) must be used on all commercial timber harvest sites.

What is a master logger? A master logger is someone who has completed the three-day Master Logger Program provided by the University of Kentucky Department of Forestry, Kentucky Forest Industries Association and the Kentucky Division of Forestry. The Kentucky Master Logger Program is designed to enhance the logger's ability to operate efficiently within the framework of constantly changing environmental and safety regulations.



The first day of the training covers proper harvesting techniques that observe BMPs and current laws related to timber harvesting. This initial training also includes information on how water quality is impacted by runoff pollution and how forest ecology and future timber supplies can be hurt by poor harvesting practices. The second day provides first aid and adult CPR instruction, which is required by federal logging standards. The third day covers regulations from the U.S. Occupational Safety and Health Administration, chainsaw safety and directional felling techniques.

Private forest landowners should be aware of the required BMPs and include them in the harvesting contracts with loggers. Best management practices for timber harvesting operations are methods designed to reduce or eliminate water pollution linked to:

- movement of sediments to streams and other waters.
- changes in stream temperatures.
- alteration of stream flow due to sediment deposits, tree tops and other logging debris.
- movement of substances harmful to waters, such as vehicle fluids and fertilizers.

Landowners share in the responsibility to make sure appropriate BMPs are used on their property. Landowners need to be aware of what is happening on their land during an active harvesting operation. The KFCA requires loggers to correct damage to land and water caused by their harvesting operations. However, using appropriate BMPs will minimize environmental damage.

The benefits of hiring a master logger are clear. To make sure loggers are master loggers, ask to see their Master Logger Identification Card. The cards are awarded to everyone who completes the Master Logger Program. The Master Logger Program is open to anyone interested in learning more about logging regulations and safety.

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(Above) Proper seeding of landings and haul roads following a completed harvest stabilizes the soil and reduces damage to downstream areas from sediments and runoff. (Below left) Operating equipment off hard surface roads under conditions that will cause excessive rutting will be a violation of the KFCA. Photos provided by the University of Kentucky Cooperative Extension Service and the Kentucky Division of Forestry

KFCA employee training

Since February 1999, the Kentucky Division of Forestry has been conducting training for all staff that will be involved in implementing the Kentucky Forest Conservation Act.

Division employees have been trained in timber harvest inspections and appropriate BMP use in preparation for conducting inspections on all commercial timber harvest operations beginning July 15, 2000.

Aliens among us

Continued from Page 5

promoting public awareness regarding exotic pest plants and their control. Members facilitate actions to control and monitor invasive exotics and exchange information on their control and management.

The Kentucky chapter of SE EPPC has just formed and will soon be working to promote the message of the council. The chapter is finalizing a list of the invasive exotic species that are most threatening to Kentucky's natural areas. This list will serve as the framework for another important goal: to pass legislation that formalizes a state noxious weed list and to develop the means to add species to it. Additional goals are to develop educational materials that will detail the threats to Kentucky's natural areas, to provide native plant alternatives for landscaping and to develop a weed alert network to help natural areas managers keep up with new invasions.

If you would like more information on or a list of exotic species or if you wish to join the SE EPPC, contact Joyce Bender at the KSNPC office in Frankfort. The phone number is (502) 573-2886. The address is 801 Schenkel Lane, Frankfort, KY 40601.

About the photos . . .

The kudzu photograph was taken in Quicksand, Ky., by J.D. Green, extension weed scientist, University of Kentucky, College of Agriculture. Taken during a herbicide treatment study, this photograph shows how kudzu can rampantly take over trees, hillsides and anything in its path.

Photographs of the Purple loosestrife and Garlic mustard were provided by the Kentucky State Nature Preserves Commission. You can view their Web site at **http://www.nr.state.ky.us/nrepc/dnr/ksnpc/index.htm**

Does the Kentucky Forest Conservation Act affect you?

Continued from Page 6

The Division of Forestry maintains a list of loggers who have successfully completed the program. The division will also maintain a list of loggers who are designated "bad actors." "Bad actors" are loggers who have not complied with the KFCA and, after four opportunities, have failed to correct the problems they created.

"By educating landowners and the logging industry, the goal of the division is to maintain a high level of compliance with the act," said Mark Matuszewski, director of the Kentucky Division of Forestry. "The division has been providing technical assistance to loggers across the state since last spring, and we are hopeful that most loggers in Kentucky are aware of the requirements of the act."

If you are interested in attending a Master Logger Program, contact Mark Schuster at 1-800-859-6006. For additional information on the KFCA, contact the Division of Forestry at 1-800-866-0555.

EQC offers recommendations to address Kentucky's sewage problems

Continued from Page 4

State Action Plan -- The NREPC and the Cabinet for Health Services should work together to prepare a state action plan to address onsite sewage problems. The plan should set program priorities, promote agency cooperation and outline collaborative strategies to tackle problems.

Inventory -- The EQC recommends that a statewide inventory of straight pipes (pipes which discharge sewage into waterways or onto the ground) and failing septic systems be conducted. Strategies should be developed to target these problems.

Infrastructure Planning -- Counties should be given funding to prepare 20-year wastewater/drinking water infrastructure plans. Counties should be urged to create regional water and sewer systems in cooperation with neighboring counties.

Onsite Loan and Grant Fund -- Some homeowners need financial assistance to repair onsite sewage systems or to install them in order to eliminate straight pipes. The EQC recommends that the Kentucky Infrastructure Authority develop a statewide onsite sewage loan and hardship grant program.

Onsite Education Campaign -- The key to promoting onsite sewage management is a strong program of education and public outreach. The EQC recommends that the NREPC work with the Cabinet for Health Services to develop and fund an onsite sewage education campaign in Kentucky.

Onsite Sewage Disclosure -- The EQC recommends that lending institutions and homebuyers become advocates for proper sewage treatment through the passage of state legislation that requires a seller to disclose to a prospective buyer how sewage is managed on the property.

The EQC hopes this report will generate public interest and state action in addressing onsite sewage issues in Kentucky.

Contact the EQC for a copy of the report *Onsite Sewage in Kentucky* or read it on the EQC Web site at **http://www.state.ky.us/agencies/eqc/eqc.html.**

Loans to provide special equipment to 24 counties

By Martin Bess
Division of Conservation

Kentucky farmers will benefit from loans approved for 24 of the state's conservation districts. The Kentucky Soil and Water Conservation Commission approved the loans to help finance the purchase of "no-till" drills. The drills allow seed to be planted with little or no soil disturbance, therefore reducing the chances of soil erosion. The loans will allow the counties to finance two-thirds of the purchase price of the drills ($195,005). The remaining $104,850 has been paid in the form of a down payment by the Kentucky Department of Fish and Wildlife Resources.

The conservation districts will lend the drills to farmers and landowners who want to plant native grasses. Those borrowing the equipment will pay a fee that will help cover the cost of the drill. It will be especially important for farmers to plant these grasses this spring because the state's drought has taken a big toll on pastures and hay-producing land in the Commonwealth. The grasses enhance land by providing feed and a wildlife habitat. By using "no-till" drills, farmers will be able to re-establish the grasses according to best management practices. The drills will be purchased for the following counties:

Anderson	Casey	Garrard	Madison	Powell
Ballard	Christian	Harrison	McLean	Pulaski
Boyd	Clark	Hopkins	Mercer	Rockcastle
Calloway	Estill	Knox	Montgomery	Webster
Carroll	Franklin	Lyon	Pendleton	

The purchase of the drills is part of a team effort by the Kentucky Division of Conservation and the Kentucky Department of Fish and Wildlife Resources to promote the planting of native grasses. The project includes information on planting, maintaining and managing the grasses. Education materials, field days, farm demonstrations and technical assistance will be provided to all participants. Special reporting requirements of the program will track the progress being made in incorporating native grasses into agricultural operations.

Farmers and private landowners in the counties listed above who want to use this equipment should contact their local conservation district offices. Offices in many other counties already own the equipment. Farmers and landowners should contact their local conservation district offices to find out if the equipment is available in their area. The purchase of this equipment is made possible through the Kentucky Division of Conservation's Equipment Revolving Loan Program. For more information on this program and other equipment that is available through it, contact Sheila Vaughan, the financial assistance manager, at (502) 564-3080 or visit the agency's Web site at **www.nr.state.ky.us/nrepc/dnr/Conserve/doc2.htm.**

This no-till drill produces very little soil disturbance, therefore reducing erosion. Photo courtesy of the Department of Fish and Wildlife Resources

Some new homes outperform others

How a systems approach to building homes improves comfort, affordability and the environment

By Karen Landry
Division of Energy

The term "high-performance" might be familiar to you in describing some cars and even computers, but what about houses? How, exactly, does a house "perform"? As with cars and computers, the individual parts working together determine how well your house works for you.

A high-performance house integrates its various components to ensure comfort, safety, efficiency and affordability. For these components to work together, the house has to be viewed as a system. For example, your heating system is not just a furnace – it's a heat-delivery system that starts at the furnace and delivers heat throughout your home using a network of ducts. You may have a top-of-the-line, energy-efficient furnace, but if the ducts leak and are not insulated and your walls, attic, windows and doors are not insulated, your energy bills will remain high.

While changes can be made to existing homes to improve comfort and efficiency, the easiest time to examine these issues is during home construction. Most new homes fail to meet high-performance standards. A study of homes in the Atlanta area found that the annual energy bills for newly constructed houses averaged more than $1,200. Increasing the energy efficiency of the homes saved more than $400 a year and added less than $500 to construction costs. You can see the annual savings from building a high-performance house definitely outweigh the up-front costs.

The benefits are more than just monetary. A well-designed, energy-efficient, high-performance home produces less pollution (by using fewer fossil fuels to heat and cool), is more comfortable (through better control of humidity and temperatures) and is potentially safer

Continued to Page 18

April 22 is the 30th annual Earth Day: New Energy for a New Era

By Karen Landry
Division of Energy

Why the focus on Energy?

Earth Day 2000 addresses one of our most pressing questions: how will we produce and use energy in the 21st century and beyond? The Earth Day Network's "Clean Energy Now" theme focuses attention on human energy use and emerging energy solutions. The world's energy demands are increasing because the population is growing, and because more energy is being used per person. Energy is vital to every aspect of life, yet current patterns of energy use remain extremely wasteful. Everyone can contribute to a healthier planet by using energy more wisely.

Through more efficient use of energy, we can reduce the negative impacts of energy production without sacrificing our standard of living. Measures such as improving the insulation of our homes and schools, using compact fluorescent light bulbs and increasing the gas mileage in our cars can significantly reduce our energy use.

Nationwide, Earth Day 2000 proponents hope to spread the word about the growing importance of renewable sources of energy and energy efficiency. For more information about the Earth Day Network's "Clean Energy Now" campaign, visit their Web site at **http://www.earthday.net.**

What is Renewable Energy?

Renewable energy comes from sources that are inexhaustible. These energy supplies can be endless resources such as the sun, the wind and the heat of the Earth, or they can be replaceable fuels such as plants. In contrast, fossil fuels—oil, coal and natural gas—form so slowly in comparison to our rate of use that they are considered nonrenewable—that is, they draw on finite resources that will eventually dwindle, becoming too expensive or too environmentally damaging to retrieve.

Most renewable energy comes either directly or indirectly from the sun. Current technologies allow us to harness this solar energy for heating, lighting, cooling and electricity. The sun's energy can be converted to electricity either directly through photovoltaic cells (solar cells) or indirectly by concentrating the sun's heat and using it to run a steam turbine. The sun's heat can be used for hot water heating or solar cooling. The sun's heat drives the winds, which produce energy that is captured with wind turbines. Sunlight causes plants to grow, yielding stored energy in the form of biomass that can be converted into fuels or burned to produce electricity.

Not all renewable energy resources come from the sun. **Hydropower** energy—using the energy of water in rivers—can also be a source of renewable energy. **Geothermal** energy taps the Earth's internal heat for a variety of uses, including electric power production and the heating and cooling of buildings.

Benefits of Renewable Energy

- **Environmental benefits.** Renewable energy technologies are clean sources of energy that have a much lower environmental impact than conventional energy technologies.
- **Jobs and the economy.** Most renewable energy investments are spent on materials and labor to build and maintain the facilities, rather than on costly energy imports. Renewable energy investments are usually spent within the United States, frequently in the same state, and often in the same town. Meanwhile, renewable energy technologies developed and built in the United States are being sold overseas, providing a boost to the U.S. trade deficit.
- **Energy security.** After the oil supply disruptions of the early 1970s, our nation has increased its dependence on foreign oil supplies instead of decreasing it. Renewable energy can lower this dependence.

Why is Energy Efficiency Important?

Energy efficiency means using less energy to accomplish the same task. Despite the increasing use of renewable energy, the United States still relies on the nonrenewable fossil fuels—coal, oil and natural gas—for most of its energy needs. To help these supplies last longer and to protect the environment, energy efficiency plays a crucial role in our economy. More efficient use of energy throughout our country results in less money spent on energy by homeowners, schools, government agencies, businesses and industries. The money that would have been spent on energy can instead be spent on consumer goods, education, services and products. Energy efficiency allows for economic growth while protecting the environment.

Solar energy is cost-effective today in many applications in Kentucky. Passive solar design of buildings is one of the most cost-effective uses of solar energy. The Kentucky Division of Energy has guides for designers and builders for making use of the sun for heat and light in new residential and commercial buildings at very little additional cost. Geothermal systems are another cost-effective source of energy in Kentucky. Throughout the state, an increasing number of homes, schools and commercial buildings are using geothermal systems for heating and cooling.

Energy Facts

Did you know . . .

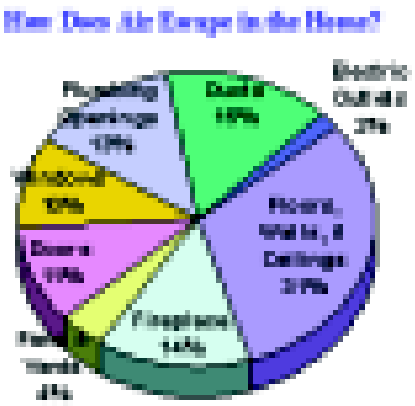
- The typical U.S. family spends close to $1,300 a year on its home's utility bills. Unfortunately, a large portion of that energy is wasted. The amount of energy wasted just through poorly insulated windows and doors is about as much energy as we get from the Alaskan pipeline each year.
- The U.S. wastes $12 billion every year due to inefficient and outdated building energy technologies.
- The average home produces more than twice the pollution (through generation of household electricity) than the average car.
- Cars and light trucks use more gasoline each year than the entire U.S. oil industry produces.
- Lighting accounts for almost one-fourth of all electricity sold in the U.S. By improving your lighting system, you can significantly reduce your electricity bill.
- Using a ceramic coffee mug conserves the amount of energy it would take to manufacture 500 paper cups.
- Recycling two aluminum cans saves the same amount of energy it takes to power your PC for one workday.

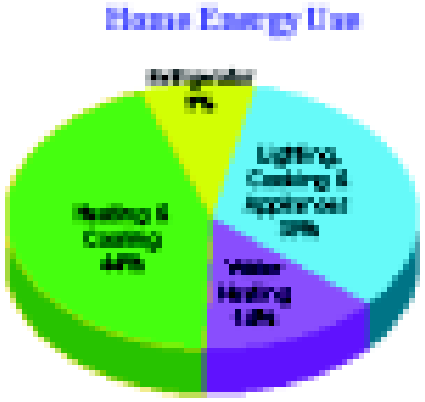
You don't have to run out and buy the latest energy-efficient appliance in order to save energy. Just practice these energy-saving tips and you'll save money and energy.

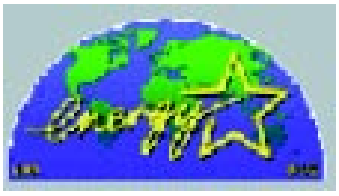
- Turn off lights in rooms not being used. Replace incandescent bulbs with energy-efficient fluorescent bulbs.
- Reduce heating and cooling while you sleep and when no one is at home.
- Keep air conditioning thermostat on 78 degrees or higher and use ceiling fans.
- Change furnace and air conditioner filters once a month.
- Check for air leaks around windows and doors. Seal with caulking and weatherstripping, and save 10 percent or more on heating and cooling.
- Use low-flow showerheads to save 50 percent on energy used to heat the water.
- Check your home's insulation in floors, attics and walls. Insulate to the recommended R value. (Factors vary—refer to manufacturer's recommendations or contact the Kentucky Division of Energy.)
- Drive fuel-efficient vehicles, carpool, combine short trips, and when possible, walk or ride a bike.
- Use a programmable thermostat on your central air conditioner/furnace.
- Seal holes where conduits and pipes enter the attic and along partition walls, eaves and knee walls.
- Open drapes on sunny winter days to let warm sun in; close them on winter nights to keep the heat in.
- Plant deciduous trees on the south and west sides of your house that block the sun in summer but let the sun through in winter after the leaves have fallen off.
- Keep tires inflated to their rated pressure or slightly above to improve your gas mileage up to 5 percent and extend the life of your tires.
- Have your car tuned as needed. A poorly tuned car can use as much as 3 to 9 percent more gas than a well-tuned one.

Resources

Kentucky Division of Energy:
(800) 282-0868
http://www.nr.state.ky.us/nrepc/dnr/energy/dnrdoe.html
National Renewable Energy Laboratory: http://www.nrel.gov/
Energy Efficiency and Renewable Energy Network:
http://www.eren.doe.gov/ee.html
Energy Efficiency and Renewable Energy Network—Energy Savers: Tips on Saving Energy & Money at Home:
http://www.eren.doe.gov/consumerinfo/energy_savers/
U.S. Department of Energy Fuel Economy Guide:
http://www.fueleconomy.gov/
U.S. Environmental Protection Agency's Energy Star site:
http://www.energystar.gov/







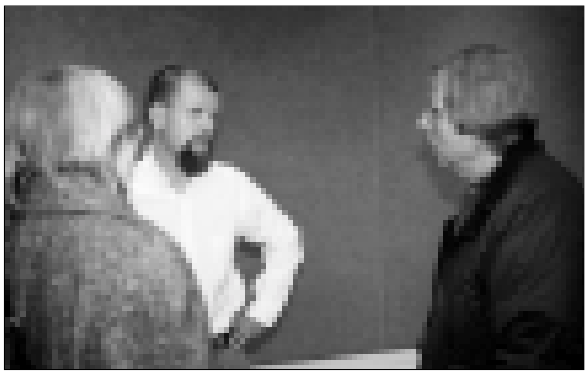
ENERGY STAR®-labeled products use less energy than other products, save you money on utility bills and help protect the environment.

Cleanup plan announced for Red Penn Landfill

By Anya Armes Weber
Division of Waste Management

The cleanup and closure of an Oldham County landfill will be complete by the end of the year.

Red Penn Landfill in Peewee Valley is an inactive, unlined landfill within a 151-acre property. Between 1954 and 1987, about 48 acres were used for waste disposal. The landfill was permitted to accept only residential waste, but drums of industrial rubbish and sludge, paint waste and other unauthorized materials were dumped at the site, along with other industrial and household wastes.



Rick Hogan, center, talks with two citizens at a community meeting on Dec. 13 to address public concerns about the Red Penn Landfill in Oldham County. Hogan is supervisor of the Division of Waste Management's Superfund Branch, Federal Superfund Section. Photo by Anya Armes Weber

Operations at the facility stopped in August 1987, but the facility wasn't properly closed to prevent hazards to human health and the environment.

It was also in 1987 that Division of Waste Management officials learned potentially hazardous materials had been illegally dumped at the landfill. They conducted a site investigation and found contamination in neighboring Floyds Fork and in groundwater in the uppermost layer of rock beneath the landfill.

In 1989, the U.S. Environmental Protection Agency (EPA) added the Red Penn Landfill to its Superfund National Priorities List, a list of the country's most serious hazardous waste sites.

The Division of Waste Management approved a cleanup plan for the site in October 1999. The landfill will be covered with an impermeable cap called a geosynthetic clay liner. The liner is made of bentonite, a naturally occurring claylike mineral found in the western United States. It will be sandwiched between two layers of fabric and 18 inches of soil to allow a vegetative cover to grow on the site.

The cleanup work should be complete by the end of 2000. The site will be monitored for at least five years.

The Natural Resources and Environmental Protection Cabinet's Division of Waste Management and the EPA answered questions on the status of Red Penn at a December meeting. Officials from RMT Inc., the Madison, Wis., company in charge of the cleanup, also attended. Rick Hogan, supervisor of the Division of Waste Management's Superfund Branch, Federal Superfund Section, represented the state.

Community residents' concerns ranged from through traffic during the cleanup months to continuing testing in Floyds Fork.

Hogan assured residents that water quality is a top priority. "We're testing all the possible entry points of Floyds Fork until we are sure it's not a problem," Hogan said.

Hogan said he would like to plan another community meeting this spring.

Cleanup activities at this site are detailed in its administrative record, which is available for review at the Division of Waste Management's Frankfort office by appointment only. To make an appointment, submit a written request to Maria Wood at least 72 hours prior to the desired review date. Requests can be faxed to (502) 564-9232.

The information can also be reviewed at the South Oldham Library located at 6720 W. Highway 146 in Crestwood.

For additional information about the Red Penn cleanup, contact Rick Hogan or Eric Liebenauer at the Division of Waste Management at (502) 564-6716.

Owensboro utility plans to burn tire chips as fuel

By Anya Armes Weber
Division of Waste Management

Owensboro Municipal Utilities (OMU) in Daviess County, Ky., has received a permit from the Natural Resources and Environmental Protection Cabinet to burn tire chips. OMU is the first Kentucky facility to be granted a permit to use tire-derived fuel.

OMU will burn a mixture of processed waste tire chips and coal as fuel in a unit at its electrical generating station. The mixture will consist of 98 percent coal and 2 percent tire chips. The permit issued to OMU allows the mixture to consist of up to 4 percent tire chips.

Tire-derived fuel creates a market for waste tires that have long been a problem for the state. Kentuckians generate about 4 million waste tires a year and OMU will use about 1 million of those to generate fuel each year. The utility plans to take bids for tire chips from Kentucky tire processors.

Kentuckians generate about 4 million waste tires a year and OMU will use about 1 million of those to generate fuel each year.

Using tires as fuel keeps them out of landfills, where they frequently float to the surface and interfere with operations. The practice also keeps tires from open dumps, where mosquitoes breed.

OMU completed several successful trial burns in the past two years and noted no hazardous effects, said George Gilbert, engineer consultant in the Division of Waste Management. Tires burn cleaner than coal and adding them to the coal mixture could even help the air by lowering sulfur dioxide and particulate emissions. "It's a win-win situation," Gilbert said. He added that the burning of tire-derived fuel at OMU will be

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Phoenix Award

Louisville stadium named nation's best brownfield redevelopment

By Anya Armes Weber
Division of Waste Management

"Let's not just abandon our hundred-year-old downtowns and let them become deteriorated and the least valued part of our community."

Gov. Paul Patton
Excerpt from the State of the Commonwealth speech

The University of Louisville's Papa John's Cardinal Stadium has a new addition to its trophy case. The stadium won the 1999 Grand Prize Phoenix Award for being the country's best brownfield redevelopment project.

Brownfields are abandoned, idled or under-used industrial and commercial facilities. Developers are reluctant to expand or redevelop the sites because of real or perceived environmental contamination. The U.S. Environmental Protection Agency (EPA) and the Division of Waste Management work to help communities and businesses prevent, assess, clean and reuse brownfields.

The Papa John's stadium site used to be a CSX railroad yard. This 92-acre site is one the largest remediation projects conducted under state oversight. A comprehensive risk assessment was required to develop a risk management plan used in the design of the stadium facility.

The Engineers' Society of Western Pennsylvania gave stadium officials the Phoenix Award.

"Recognition through awards such as this helps foster brownfields redevelopment," said Herb Petitjean, who works in the Superfund Branch at the Division of Waste Management. Petitjean helps coordinate the division's brownfields program and encourages all Kentucky communities to apply for grants from the EPA which can be used for brownfields assessment.

Louisville and Covington have been awarded EPA brownfield pilot grants. Details about their projects are online at **http://www.epa.gov/brownfields/html-doc/covngton.htm** and **http://www.epa.gov/brownfields/html-doc/louisvil.htm**.

In addition, the state has received a grant from the EPA to assist communities doing site characterizations. Morganfield, Winchester and Maysville were helped through this funding, and the state is looking for new communities to assist.

"Cities appreciate the program," Petitjean said. "It reduces urban sprawl and problems with driving long distances." Brownfields are not only health hazards, he said, they are eyesores that drag down property values. Redevelopment in some areas might be eligible for federal economic development incentives.

Photo by Keith Sims

Many contaminated sites can be cleaned and redeveloped without the support of the brownfields program, Petitjean noted. The Natural Resources and Environmental Protection Cabinet's Voluntary Cleanup Program (VCP) is especially effective for brownfields. The VCP allows volunteers to initiate cleanup, avoiding the delays and costs that come with the enforcement process when a state agency mandates cleanup. Learn more about the state's Voluntary Cleanup Program online at **http://www.nr.state.ky.us/nrepc/dep/waste/programs/sf/vcpguide.htm**.

Petitjean pointed to the demolition and cleanup of the Bourbon Stock Yards in Louisville as a voluntary cleanup success story. The Home of the Innocents, a facility for needy children, will build a new residential village and headquarters at the site.

Although the Kentucky brownfields program is still in its beginning stages, it's starting to garner more attention, Petitjean said. Gov. Paul Patton alluded to brownfields in his State of the Commonwealth speech saying, "Let's not just abandon our hundred-year-old downtowns and let them become deteriorated and the least valued part of our community."

For information about the Phoenix Award, visit **http://www.eswp.com/phoenix.htm**. For information about brownfields, visit **http://www.epa.gov/brownfields/**.

The Grand Prize Phoenix Award is a 15-pound, leaded-crystal sculpture worth $3,500. The Phoenix Awards will become part of the U.S. Environmental Protection Agency's Brownfields Conference this year and will remain the only national awards program to recognize the country's successful brownfield projects.

Brownfields Outreach Workshop

The state Superfund program is cosponsoring the Brownfields Outreach Workshop for community officials May 25 at Northern Kentucky University in Highland Heights. For information about the workshop or applying for a grant, contact Herb Petitjean at (502) 564-6716.

Report outlines status of Kentucky's groundwater supplies

By Peter Goodmann
Division of Water

The Division of Water submitted the following information as an attachment to the U.S. Environmental Protection Agency's groundwater report to Congress, as required by the Safe Drinking Water Act.

Commonwealth of Kentucky Groundwater Protection Program

Importance of Groundwater as a Resource

Kentucky's groundwater is an important source of drinking water for thousands of Kentuckians. It also provides water for industrial processes and irrigation, and is a significant source for stream flow. An estimated 1.3 million Kentuckians are served by 280 groundwater-supported public water systems. Ninety percent of rural Kentuckians who are not connected to public water systems rely on groundwater for their drinking water and everyday use. Protection of this resource is crucial to Kentucky's economy, public health and the environment.

Availability and Use

Potable groundwater is found throughout Kentucky, although available resources vary considerably according to regional geology. Kentucky's groundwater resources exist in four basic aquifer types:

Sand and gravel deposits along rivers — found in Kentucky's northern and western borders, they are typical of the Ohio and Mississippi River valleys.

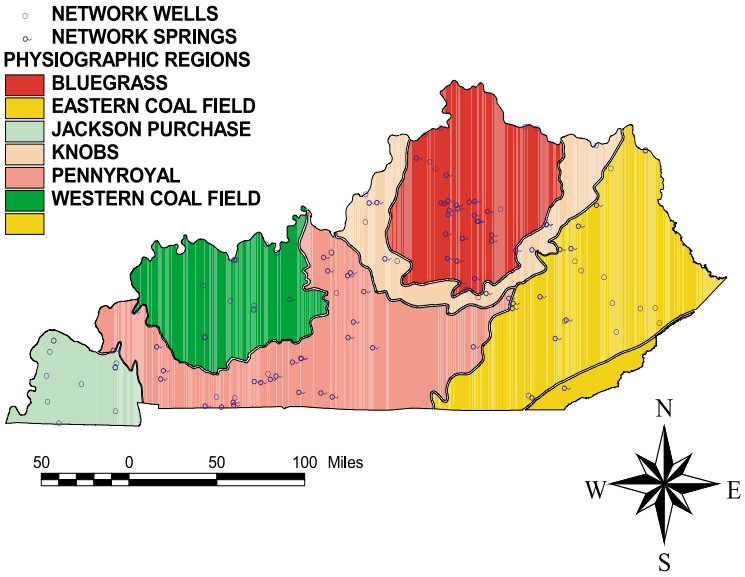
Karst flow systems — areas characterized by sinkholes, sinking streams, caves and springs.

- Found in approximately half of Kentucky, mainly in Inner Bluegrass and Pennyroyal regions (see map at top of page).
- Contain many limited, shallow, conduit-flow systems.
- Supply amounts vary widely.
- Generally provide sufficient water for public and domestic use.
- May support agriculture and industry.

Sand and gravel deposits — found in the Jackson Purchase area.

- Support household, industrial and agricultural uses.
- Support large public water supply use.

Physiographic Regions



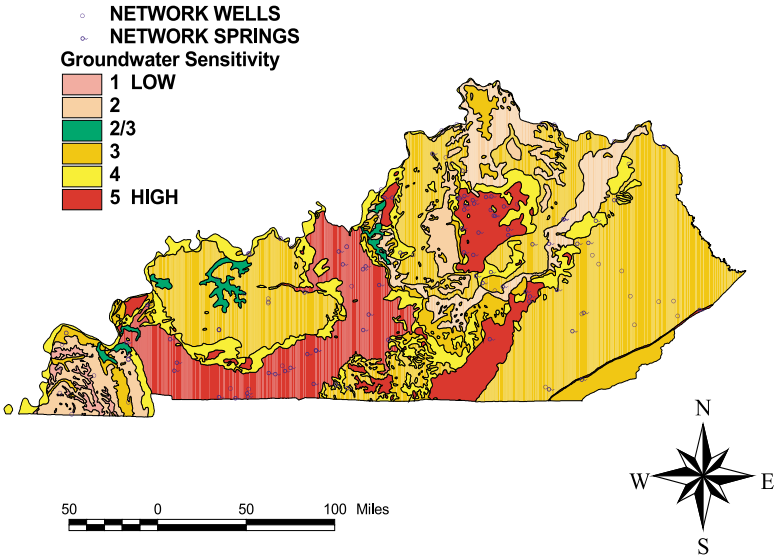
Fractured bedrock — wells bored into fractured sandstone and shale.

- Generally provides sufficient water for domestic use.

In 1997, 60 percent of public water systems in Kentucky depended on groundwater as a source, withdrawing more than 60 million gallons per day. The largest public water systems using groundwater withdraw from sand and gravel deposits along the Ohio and Mississippi rivers and in the Jackson Purchase. Public systems in eastern Kentucky are supplied by water wells, and a number of systems in the Pennyroyal and Bluegrass utilize natural springs. (See the accompanying map for information on where these regions are located).

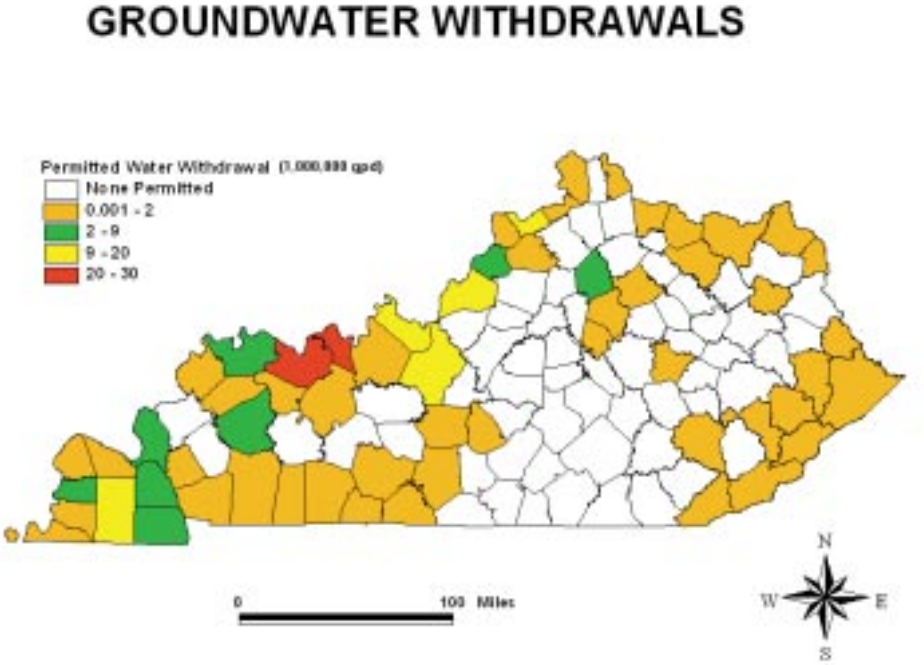
Households that depend on private water wells for their drinking water are most numerous in eastern Kentucky and in the Jackson Purchase; these two regions account for more than 65 percent of all new well construction in the state.

GROUNDWATER SENSITIVITY



Monitoring Network

Since 1995, the Kentucky Division of Water has sampled groundwater at approximately 170 sites throughout the state as part of its ambient groundwater monitoring program. Monitoring sites include public and private water supplies, unregulated public access springs (i.e., "roadside springs") and unused springs. Sites are sampled from one to six times per year, depending on the type of aquifer. Water quality parameters monitored include nutrients, major inorganic ions (e.g., carbonate, sulfate, iron and manganese, chloride, sodium, calcium and magnesium), metals and pesticides.



Wellhead Protection Plan Program

Kentucky's Wellhead Protection Plan Program requires public water suppliers that rely on groundwater to develop a wellhead protection plan (WHPP) for their source water. A WHPP is designed to identify the recharge area of the well(s) or spring(s), identify the potential contaminant sources in the recharge area and implement groundwater protection strategies for these areas. Wellhead protection is an integral part of Kentucky's Source Water Assessment Program (SWAP). Kentucky has been a national leader on source water protection; it was the first state in the nation to have its SWAP approved by the U.S. Environmental Protection Agency.

Groundwater Protection Plan Program

Kentucky's Groundwater Protection Plan regulation requires that entities conducting activities that have the potential to pollute groundwater develop and implement a groundwater protection plan. The plan includes pollution prevention activities such as preventive maintenance, best management practices, spill response plans, accurate record keeping and personnel training. Regular inspections ensure that the protective practices are in place and functioning properly. Kentucky also has an Agriculture Water Quality Program that requires all agricultural, logging and timber operations to develop and implement best management practices to prevent pollution of the waters of the Commonwealth.

Contamination Issues

Groundwater quality in Kentucky is generally good. Water quality trends can be related largely to groundwater sensitivity and well construction. Impacts on groundwater quality from human activities occur predominantly in the most sensitive (karst) areas and result primarily from agricultural activities. Pesticides are a concern, especially in karst regions, which are the only areas of the state where pesticides are routinely detected in spring samples. For example, atrazine, a corn pesticide, is detected in 31 percent of spring samples, and 1.4 percent of samples exceeded the drinking water standard for atrazine. In contrast, atrazine has occurred in only 2.8 percent of well samples, and none of those detections exceeded the drinking water standard. Nitrate occurrence in groundwater is more widespread. The average value for nitrate in wells and springs is well below the maximum contaminant level (MCL) for nitrate in drinking water. The highest nitrate levels in Kentucky wells are associated with shallow, hand-dug wells; the lowest nitrate levels occur in deeper, drilled wells. Nitrate and bacterial contamination of wells is associated locally with ineffective onsite sewage disposal. Nitrate and bacterial contamination is also related to improper well construction (e.g., poorly cased wells and hand-dug wells) and inadequate well maintenance.

Wells in the eastern and western coal fields and in other parts of the state locally contain high iron, manganese and sulfur levels. Groundwater users commonly experience strong sulfur smells in their water, iron staining of appliances and laundry and bacterial growth in the well. The occurrence of iron, manganese and sulfur in wells is also associated with coliform bacteria and is complicated by poor well construction and improper well maintenance.

Local contamination from sites such as landfills, underground storage tanks, Superfund and hazardous waste sites remains a concern as much for Kentucky as other states. However, no widespread impact or negative trend on water quality resulting from waste sites has occurred in Kentucky. Disruption of groundwater use because of a contaminated release or waste has occurred locally, but has been uncommon.

Kentucky's groundwater is an important resource for private and public drinking water, irrigation and other agricultural and industrial uses. Groundwater in Kentucky is widely available and of generally good quality. The protection of this resource is crucial to Kentucky's economy, public health and the environment.

$26 million loan approved for Owensboro/Daviess County wastewater improvements

By Maleva Chamberlain
Division of Water

The largest loan in the history of the state revolving fund (SRF) for wastewater was approved by the Kentucky Infrastructure Authority in December 1999. The loan provides $26 million to the Regional Water Resources Agency (RWRA) of Owensboro/Daviess County for upgrades and extensions of sewers and wastewater treatment. RWRA previously received a $7.5 million SRF loan to serve the KY 54 Corridor.

The RWRA was created in 1994 to eliminate numerous small waste treatment plants and septic systems by transporting flow to a larger, centralized system. This approach is known as "regionalization" and allows communities to combine their financial resources into a more efficient, more dependable system. "The RWRA is a regionalization model for other counties," said Jack Wilson, director of the Division of Water.

The $26 million loan will allow the RWRA to expand and upgrade the 30-year-old Max N. Rhoads Wastewater Treatment Plant-West from a capacity of 12 million gallons per day to 15 million gallons per day. In addition, funds will be used to renovate pumping stations, renovate sewers and extend sewer lines outside city limits.

> "Regionalization is the best approach for wastewater treatment in Kentucky, and it can extend across county lines to provide more reliable service for people throughout the Commonwealth."
>
> **Secretary James E. Bickford**

The RWRA currently serves 22,476 customers, both inside and outside the Owensboro city limits. Customers are residential, commercial and industrial. Proposed sewer line extensions reach 1,035 customers outside the city limits, including 10 commercial customers. All of those customers are currently served by "package plants," small treatment systems designed to serve a limited area. The sewer line extension will also make sewer service available to numerous subdivisions that are currently served by septic systems and small treatment plants. The area's package plants and septic systems have created serious environmental concerns over the years. Also, a few straight pipes will be eliminated.

The RWRA has closed nine private package treatment plants since 1994, and the loan will allow it to eliminate 18 more package plants and septic tanks near the city's drinking water wells.

James E. Bickford, secretary of the Natural Resources and Environmental Protection Cabinet and vice chairman of the Kentucky Infrastructure Authority, said the loan to the RWRA is a major step toward the goal of regional sewer systems throughout the state. "This is a great example of a city and county working together to provide sewer services to their citizens," he said. "Regionalization is the best approach for wastewater treatment in Kentucky, and it can extend across county lines to provide more reliable service for people throughout the Commonwealth."

Kentucky program to protect water supplies moving forward

By Peter Goodmann
Division of Water

The U.S. Environmental Protection Agency (EPA) gave Kentucky a big task: develop a wellhead protection plan for public water supplies. It's a process that's making progress thanks to the cooperation of communities across the Commonwealth.

The wellhead protection area is the land area that contributes directly to or influences the quality of groundwater obtained from wells or springs for use as public drinking water. The Division of Water is requiring Kentucky communities that rely on groundwater as their source of public drinking water to develop wellhead protection plans.

The plans have two phases, and the Division of Water's Groundwater Branch and the Kentucky Rural Water Association (KRWA) have been working together to assist communities in completing both phases.

Phase one of the wellhead protection plan includes establishing a local wellhead protection committee and delineating the wellhead protection area for the groundwater source(s).

Phase two includes surveying potential contaminant sources in the wellhead protection area and determining how susceptible source water is to those contaminant sources. Phase two also involves developing long-range protection plans for source water and contingency plans in case of contamination or water shortage.

Currently, 280 public water systems in Kentucky that rely on groundwater as a source of drinking water are or will be developing wellhead protection plans. These systems serve a population of 1,336,856 people.

As of Feb. 1, 2000, sixty-eight systems serving a population of 243,314 have completed Phase one of their wellhead protection plans. Twenty-five systems serving a population of 81,027 have successfully completed Phase two of their wellhead protection plans.

All wellhead protection plans should be completed by April 2003. Systems are required to update their wellhead protection plans every five years.

Register now for the annual Nonpoint Source Conference

By Maleva Chamberlain
Division of Water

Projects to improve water quality will be the main focus of the annual Nonpoint Source Conference presented by the Kentucky Division of Water and the University of Kentucky. The term "nonpoint source" refers to pollution in streams, rivers, lakes and groundwater that occurs when land activities cause or allow various types of pollutants to run off or drain into those waters.

The Division of Water and the university have hosted the annual conference since 1995 to provide general and technical information about various projects. The conference includes information on projects funded through the federal Clean Water Act which is being implemented in Kentucky to address problems caused by nonpoint source pollution. The conference also provides a place for project managers and Division of Water Nonpoint Source staff to network.

This year's conference is planned for May 23-25 at the University Plaza Hotel and Convention Center in Bowling Green. Opening day will include an evening address by Dr. Julian Lewis, a noted endangered cave species expert. Planned afternoon activities include a tour of the American Cave Museum and visits to the sites of two successful projects to protect groundwater from pollution introduced through sinkholes.

On May 24, Jim Wimberly from ORGANIX will discuss alternative ways to handle animal and human waste. Wimberly has spoken extensively on this topic and provides some innovative and effective insights into options and issues.

For more information, contact Geaunita Caylor, University of Kentucky, College of Engineering/OISTL, 107 Mining & Mineral Resources Bldg., Lexington, KY 40506-0107, phone (606) 257-2820 or e-mail: **gcaylor@engr.uk.edu**

Trout honored by advisory panel

By Rose Marie Wilmoth
Air Rep. for Small Business

Jon Trout of the Small Business Stationary Source Compliance Advisory Panel was presented with a Governor's Certificate of Recognition for serving as the acting chairman during 1999.

Trout, assistant director of the Jefferson County Air Pollution Control District, received his first certificate for serving as chairman of the advisory panel in 1998. He was vice chairman during 1997 and took the lead in developing the Small Business Air Quality Stewardship Award. He has served as committee chairman since the award program's inception in 1998.

(Above) Diana Andrews, advisory panel member, presents Jon Trout with the Governor's Certificate of Recognition for serving as acting chairman. (Below left) Patti Kirk, newly elected chairperson for the panel. Photos by Rose Marie Wilmoth

On Dec. 6, 1999, the panel elected Patti Kirk as its new chairperson. Kirk, deputy commissioner of the Economic Development Cabinet, brings a wealth of experience to the panel since she works with small business programs in the Economic Development Cabinet. In 1996, she served as the first chairperson of the panel.

Alice Howell, newly appointed, was elected vice chairperson. She is a member of several public interest organizations.

The advisory panel is part of a program that was designed to comply with the federal Clean Air Act amendments of 1990. The amendments include provisions that direct each state to establish an assistance program to provide small businesses with information about regulatory requirements under the act.

Nominations sought for Small Business Air Quality Stewardship Award

The Small Business Stationary Source Compliance Advisory Panel will soon begin its application process for the third annual Small Business Air Quality Stewardship Award.

The awards program recognizes small businesses that have been proactive in reducing the impact of their business on air quality and identifying stewardship practices that could be used by other businesses.

Applications will become available during May and June. Individuals, businesses and organizations may nominate themselves or others for this award.

To request an application, call Rose Marie Wilmoth, Commissioner's Office, Department for Environmental Protection at (502) 564-2150.

Northern Kentucky vehicle emissions testing program off to a good start

By Parker Moore and Lillie Cox
Division for Air Quality

More than 20,000 motorists have done their part to alleviate smog problems in the Cincinnati-Northern Kentucky area. They brought their vehicles to testing stations in Boone, Campbell and Kenton counties for the Northern Kentucky Emissions ✔ Check.

The program began Sept. 1, 1999, to address the problems with ground-level ozone, or smog, that have plagued the Northern Kentucky-Cincinnati area for the past three decades. Motor vehicles are the main cause of the problem, producing about 40 percent of the area's smog-forming emissions.

"The Northern Kentucky Emissions ✔ Check identifies polluting vehicles and requires their repair," said Barry Adkins of the Kentucky Division for Air Quality, Special Programs Branch. "Having these vehicles repaired by a qualified mechanic will reduce the amount of ozone-causing emissions in Northern Kentucky from 15 tons down to 10 tons per day."

Of the 20,000 vehicles tested through December, more than 1,600 failed. Of these failures, about 60 percent passed their retest after repairs. Vehicles that could not pass the test were given a two-year waiver from testing if their owners had spent reasonable amounts on appropriate repairs ($75 for 1980-and-older vehicles; $200 for 1981-and-newer).

"First and foremost, we want this program to alleviate the ozone problem," Adkins said. "Still, we don't have any right to take a person's vehicle off the road if that person has made a good-faith effort to correct pollution problems – that's why we provide the repair-cost waiver. If repairs cost more than the waiver amount, it's still a good idea to get the repairs done – not just to pass the test and improve air quality, but also to improve engine performance and gas mileage. The repairs will also help drivers avoid an expensive and time-consuming cycle of emissions test failures every two years."

The air quality improvements achieved through the emissions testing are required by the federal Clean Air Act. The act mandates vehicle-emissions testing to enable areas with smog problems to attain and maintain the act's ozone standards. Although the area has met the standards during the past three years, it has violated them several times during the last 20 years. Consequently, the U.S. Environmental Protection Agency (EPA) required the cabinet to commit to a plan to reduce ozone-forming emissions in the area by 15 percent, and vehicle-emissions testing is a key part of that plan.

Because the area has met ozone standards over the last three years, the Division for Air Quality has asked the EPA to recognize the area as being in compliance with EPA standards. But even if the EPA approves this request, the division's commitment to implement Northern Kentucky Emissions ✔ Check is both legally binding and environmentally necessary.

Michael Mullins, Boone County Emissions ✔ Check Station employee, commends a customer after a successful emissions test.
Division for Air Quality photo

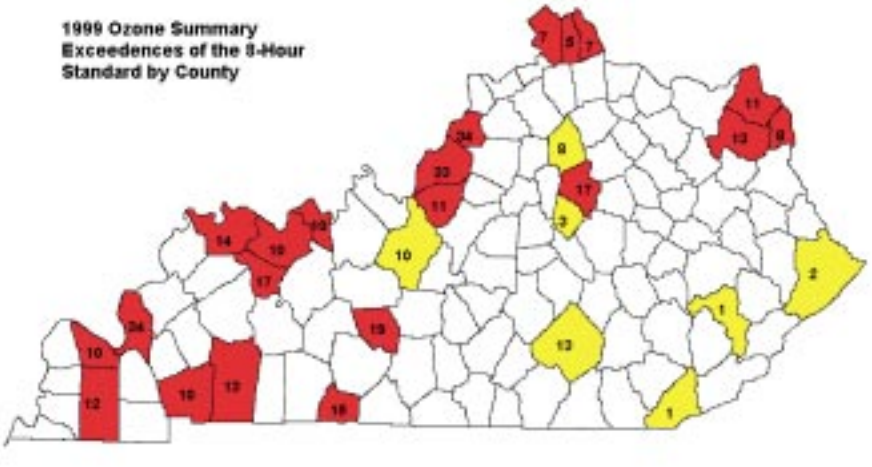
Testing requirements

Vehicles must be tested every other year. Vehicle registrations cannot be renewed if the testing has not been completed. Vehicles with odd-numbered model years have testing deadlines in odd-numbered years; vehicles with even-numbered model years have deadlines in even-numbered years. The testing period is three months long and ends on the motorist's deadline for renewing his/her registration.

There is one testing station located in each of the three counties, and motorists may test at any of the three stations without an appointment. The test takes about 10 minutes and costs $20.

Posters, brochures, newspaper ads, bus boards and radio spots are all a part of the public awareness program now appearing in Northern Kentucky. Reminders -- "Is it your turn to get your Emissions ✔ Check?" and "It all adds up to cleaner air."

Some Kentucky counties exceed 8-hour ozone standard



By Larry Garrison
Division for Air Quality

Ozone is a colorless gas that can be found in the air we breathe. Ground-level ozone is formed by a chemical reaction between volatile organic compounds (VOCs) and oxides of nitrogen (NOx) in the presence of heat and sunlight. Sources of VOCs include automobiles, trucks, buses, gasoline stations, some industries, print shops, consumer products (such as paints and cleaners) and off-road engines such as those in aircraft, lawn and garden equipment, construction equipment and locomotives. The biggest sources of NOx emissions are typically large industry and combustion sources including electric utilities. Because there are many sources of VOCs and NOx, ozone is difficult to control. Although ozone levels have declined in many areas of the state, ozone continues to be a problem.

In 1997, the U.S. Environmental Protection Agency (EPA) adopted a new standard for ozone based on an 8-hour average reading. The new standard is more stringent than the old 1-hour standard and was designed to add an additional level of protection for children, the elderly and people with respiratory problems. Based on provisions in the federal Clean Air Act, when a standard is revised or a new standard is adopted, states and the EPA are not required to immediately determine which areas meet the standard. The Clean Air Act allows up to three years to designate areas as either meeting or not meeting the standards. Once those designations are made, states must begin to develop plans to address air quality in areas not meeting the standard. Based on emissions readings taken in 1997-1999, the counties shaded in red on the above map would not meet the new 8-hour ozone standard. The counties shaded in yellow would meet the standard, even though some of them experienced numerous high readings in 1999. The numbers for each county indicate the number of times that ozone levels were measured above the standard in 1999.

It is unclear what actions will be taken in areas that do not meet the new standard. A U.S. District Court ruling on the 1997 standard has asked that the EPA provide additional information to justify its new standard. By July 2000, the EPA is expected to announce its decision on areas that do not meet the new standard.

Owensboro utility plans to burn tire chips as fuel

Continued from Page 11

monitored to ensure everything runs smoothly and safely.

Dravo Lime in Maysville has also tested the process.

The state paid for the tire feeder OMU used in its trial burn. Funding for the project came from the state's Waste Tire Trust Fund. Money for the fund comes from a $1 fee tire retailers are required to collect on each new replacement motor vehicle tire they sell. Portions of the fund are used to develop markets for waste tire materials.

Before making tires part of its fuel mixture, OMU must complete the installation of a large-scale feeding system that will process both coal and tires. It's not clear how long that process will take.

Some new homes outperform others

Continued from Page 8

(reduced threat of carbon monoxide poisoning, for example).

While some energy-saving features add to construction costs, others can reduce costs. For example, increasing insulation and sealing air leaks reduce heating and cooling needs, allowing for the use of smaller equipment and ductwork. The savings on the mechanical systems can pay for the increased cost of insulation and air sealing. The systems approach to building houses also considers such air quality concerns as radon by incorporating proper ventilation systems in tightly sealed homes.

"High-performance" training

During January and February, the Kentucky Division of Energy sponsored a series of one-day workshops for contractors, builders, code enforcement officials and other building professionals to promote the features of "high-performance" homes. Professionals from the Southface Energy Institute, a nationally recognized organization, conducted the training. Participants learned how to design and build energy-efficient homes, how to select the appropriate building materials and how to comply with the Model Energy Code when choosing among various energy-efficiency components. The division sponsored a similar workshop in early April for commercial building construction.

Cabinet keeping a close eye on MTBE

By Heather Frederick
Public Information and Education Branch

". . . we know other states have had a problem with this contaminant, and we will continue to monitor soil and water samples for MTBE. The protection of public health and the environment is our top priority."

James E. Bickford, Secretary
Natural Resources and Environmental Protection Cabinet

It's been the subject of reports on national television shows like "60 Minutes," and it's also getting lots of attention from the Natural Resources and Environmental Protection Cabinet—it's MTBE. Methyl Tertiary Butyl Ether (MTBE) is a substance that is added to some of the gasoline sold in the Commonwealth.

MTBE is one of several additives used in gasoline to reduce carbon monoxide emissions from automobiles. The concern over MTBE stems from the fact that it is a contaminant that can spread quickly through groundwater. MTBE is used in some reformulated gasoline (RFG) sold in Kentucky. Boone, Kenton, Campbell and Jefferson counties are required to sell only reformulated gasoline to help their areas meet the standards of the federal Clean Air Act. Portions of Bullitt and Oldham counties are also required to sell RFG.

The cabinet has been evaluating MTBE data generated from water, soil and sediment samples since 1995. While the cabinet does not have a testing program designed specifically for MTBE, cabinet scientists detect MTBE while analyzing samples for other contaminants.

The cabinet has analyzed more than 5,680 samples for MTBE and detected it in only 229 of those samples. With the exception of one sample, all of the samples that tested positive for MTBE are connected to a known spill of petroleum. The exception was a water sample taken from the Albany public water system in Clinton County in June 1995. Cabinet scientists believe the MTBE found in this sample came from Lake Cumberland, which is the source of Albany's public water. Recreational vehicles used on the lake may have been the source of the MTBE there.

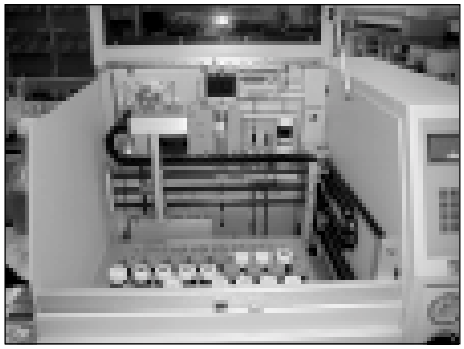
The cabinet's sampling for MTBE has included both public water systems and private wells. The contaminant has been found in private water wells only eight times, and each of these cases was connected to a known spill of petroleum. The wells were all shut down at the time of the incidents and later abandoned, replaced or rehabilitated.

"MTBE does not pose a threat to public or private water supplies in Kentucky at this time," said James E. Bickford, secretary of the Natural Resources and Environmental Protection Cabinet. "But we know other states have had a problem with this contaminant, and we will continue to monitor soil and water samples for MTBE. The protection of public health and the environment is our top priority."

The effects of MTBE on human health have not been determined. Although the contaminant has been shown to cause cancer in laboratory rats, there have been few studies addressing the toxicology of MTBE in humans. The U.S. Environmental Protection Agency (EPA) is currently conducting and evaluating studies of MTBE. The federal agency is expected to propose a set of standards for MTBE in drinking water later this year; the standards will relate to taste and odor.

"You can taste and smell MTBE in water at levels as low as four parts per billion," said Peter Goodmann, manager of the cabinet's Groundwater Branch. "That level is at least 20,000 times lower than the levels that are thought to cause adverse health effects. The EPA plans to establish a maximum contaminant level (MCL) allowed in drinking water to control for the taste and odor problems associated with MTBE. Because the taste and odor effects of MTBE occur at much lower concentrations than levels thought to cause adverse health effects, the taste and odor MCL would be much more effective in preventing any adverse public health effects from MTBE than a number based solely on toxicological considerations."

The cabinet intends to increase its monitoring for MTBE this year. If you have any questions about the testing program or want more information on the contaminant, contact the Groundwater Branch at (502) 564-3410.



(Above) Charles Snodgrass, chief chemist of Mass Spectrometry at the Division of Environmental Services Laboratory, places a water sample in the Purge and Trap Gas Chromatograph Mass Spectrometer. (Right) The Purge and Trap separates and produces a "fingerprint" of the compounds found in the sample. Photos by Cindy Schafer

Getting rid of unwanted tires

By Heather Frederick
Public Information and Education Branch

Take a close look around your home, garage or barn. Do you see an old tire, and you don't know what to do with it? The Department for Environmental Protection is offering you a free and legal way to dispose of unwanted tires through its "Waste Tire Amnesty Program."

The program allows private citizens, farmers and some small business operators to bring their tires to a designated location in their county during a three-day period. A contractor hired by the state loads and transports the tires to facilities that process them to be used in productive ways. These uses include tire-derived fuel, landfill construction and mulch for playgrounds.

The Waste Tire Amnesty Program is a one-time event that will be held in every county in the state. A schedule of upcoming events accompanies this article. Tire retailers, salvage yard operators and farm equipment sales companies are not eligible for the program.

In the future, when you buy replacement tires, be sure to leave your old tires with the retailer. Those who sell tires can dispose of them in the most inexpensive and environmentally friendly manner possible. Be prepared to pay about $1.50 per tire to cover the retailer's cost of disposing of old tires properly. This is in addition to the mandatory $1 fee that is imposed on each new tire sold in Kentucky. Money generated from that fee funds the tire amnesty program.

The Department for Environmental Protection has successfully eliminated more than 4.5 million old tires across Kentucky. You can help by taking advantage of your county's tire amnesty event and disposing of old tires properly.

Here's a look at upcoming tire amnesty events in Kentucky:

County	Location	Program dates
Johnson County	KYDOT Highway Garage KY 172 Staffordsville, KY	May 4, 5 and 6
Simpson County	KYDOT Highway Garage KY 1008 Franklin, KY	May 4, 5 and 6
Martin County	KYDOT Highway Garage KY 40 Inez, KY	May 11, 12 and 13
Warren County	KYDOT Highway Garage KY 884 (Three Springs Rd.) Bowling Green, KY	May 11, 12 and 13
Butler County	KYDOT Highway Garage Green River Pkwy & KY 70 Morgantown, KY	May 18, 19 and 20
Magoffin County	KYDOT Highway Garage KY 30 Salyersville, KY	May 18, 19 and 20
Edmonson County	KYDOT Highway Garage KY 259 Brownsville, KY	June 1, 2 and 3
Pike County	KYDOT Highway Garage KY 2552 Shelbiana, KY	June 1, 2 and 3
Hart County	KYDOT Highway Garage US 31 Munfordville, KY	June 8, 9 and 10
Letcher County	KYDOT Highway Garage US 119 Ermine, KY	June 8, 9 and 10
Leslie County	KYDOT Highway Garage KY 118 (Hyden Spur) Hyden, KY	June 15, 16 and 17
Monroe County	KYDOT Highway Garage KY 3144, Cap Harlan Rd. Tompkinsville, KY	June 15, 16 and 17
Metcalfe County	Metcalfe Co. Fairgrounds Ambulance Circle Rd. Edmonton, KY	June 22, 23, and 24
Perry County	KYDOT Highway Garage KY 451 at Christopher Hazard, KY	June 22, 23 and 24

Contact your county judge-executive's office for more information.

Children to explore state's natural resources at Kentucky Works Earth Day 2000

By Anya Armes Weber
Division of Waste Management

Hundreds of Kentucky schoolchildren will celebrate Earth Day in a hands-on fashion this year. The fourth annual Kentucky Works Earth Day 2000 is Thursday, April 20, at Louisville's Kentucky Fair and Exposition Center. Kindergarten through sixth-grade students from across the state will fill the hall to learn about the environment.

The event will include interactive exhibits and demonstrations highlighting the efforts of agriculture, industry and government to protect the environment and use natural resources wisely. School groups will compete for the "Environmental Classroom of the Year" award. The honor comes with a prize of $1,000.

The event is supported by several state businesses and agencies, including the Kentucky Farm Bureau Federation and the Natural Resources and Environmental Protection Cabinet. For more information on exhibiting at or sponsoring next year's event, call Rebeckah T. Freeman, Kentucky Farm Bureau Federation, (502) 495-7731.

Students visit the Division of Waste Management's "Enviroscape" exhibit at Kentucky Works Earth Day 1999 in Louisville. The exhibit helped students better understand hazardous substances, wastes and their effects on the environment. Photo by Anya Armes Weber

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